CLAIMS

1. A algal cell which grows in the substantial absence of light, said cell comprising chimeric DNA encoding a protein which will transport a catabolizable carbon source into the algal cell, wherein the algal cell would not grow under dark conditions in the absence of the chimeric DNA.

2. The cell of claim 1, wherein the algal cell is a microalgal cell.

3. The cell of claim 1, wherein the catabolizable carbon source is a monosaccharide or an oligosaccharide.

4. The cell of claim 1, wherein the protein is a disaccharide transporter.

5. The cell of claim 1, wherein the protein is a hexose transporter.

6. A algal cell comprising chimeric DNA which encodes a protein that will transport a catabolizable carbon source into the algal cell, wherein the protein is expressed in an amount sufficient to transport into the cell adequate catabolizable carbon source to support heterotrophic growth of the cell.

7. The cell of claim 6, wherein the algal cell is a microalgal cell.

8. The cell of claim 6, wherein the catabolizable carbon source is a monosaccharide or an oligosaccharide.

9. The cell of claim 6, wherein the protein is a disaccharide transporter.

10. The cell of claim 6, wherein the protein is a hexose transporter.

11. A method of producing algal biomass comprising culturing algae in the substantial absence of light, said algae being of a strain that is obligately phototrophic, wherein the algae further contain chimeric nucleic acid encoding a

protein that, upon expression by the algae, transports a catabolizable carbon source into the algal cells.

12. The method of claim 11, wherein the algae are microalgae.

13. The method of claim 11, wherein algae are cultured in a fermentor.

14. The method of claim 11, wherein the catabolizable carbon source is a monosaccharide or an oligosaccharide.

15. The method of claim 11, wherein the protein is expressed in an amount sufficient to transport into the cell adequate catabolizable carbon to support heterotrophic growth of the cell.

16. The method of claim 11, wherein the protein is a disaccharide transporter.

17. The method of claim 11, wherein the protein is a hexose transporter.

18. A method for the heterotrophic conversion of cells of an organism selected from the group consisting of obligately phototrophic marine organisms, prokaryotic, and eukaryotic algae, comprising the steps of (a) transforming the cells with DNA comprising a gene coding for a transporter of a catabolizable carbon source across the cell membrane and (b) selecting transformed cells capable of growth on the catabolizable carbon source in the dark.

19. The method of claim 18, wherein the organism is selected from marine algae.

20. The method of claim 18, wherein the gene coding for a transporter of a catabolizable carbon source is coupled with a selectable gene, and after transformation, transformed cells are grown on media selective for the selectable

gene before selecting cells capable of growth on the catabolizable carbon source in the dark.

21. The method of claim 20, wherein the selectable gene confers resistance to an antibiotic on the transformed cells, and the selective media contains the antibiotic.

22. A method for selecting transformed cells from a cell population expopsed to a transforming vector containing a gene of interest, said method comprising

transfecting a cell population, cells of said population being unable to grow on a source of catabolizable carbon in the dark, with a transformation vector comprising a gene of interest and a gene enabling growth of the cells on the source of catabolizable carbon in the dark;

selecting cells capable of growth in the dark; and

testing the selected cells to determine whether the selected cells also contain the gene of interest.